

Terms of Reference for NOAA Southeast Fisheries Science Center
Fiscal Year 2014
Stock Assessment Science Program Review

Purpose of the Review

Annual reviews of science programs at the National Marine Fisheries Service (NMFS) Science Centers (including associated laboratories) and the Office of Science and Technology (ST) are being conducted to:

- 1) Evaluate the quality, relevance, and performance of science and research conducted in NMFS Science Centers and associated laboratories, and
- 2) Strategically position the Science Centers and ST in planning future science and research.

Scope of Review

The objective of this review is to examine and evaluate the Southeast Fisheries Science Center's (SEFSC) fishery stock assessment program that is conducted pursuant to the Magnuson-Stevens Act (2006) and comparable international agreements. Stock assessments apply mathematical and statistical models to data collected from living resources and their associated fisheries to provide scientific advice on the current and future status of managed resources. The fishery, survey, and biological data available for stock assessments were reviewed in 2013. In 2014, the focus of the review shifts to the process of developing stock assessments from these data, including the modeling approaches, review process, and communication of advice. This is not intended to be an in-depth review of a particular stock assessment, but rather a review of the body of assessments conducted in response to available data and management needs. For the review, the panel shall consider materials provided by the Center and comment on four assessment themes and two operational discussion items relating to the NMFS marine stock assessment program in the southeast. Each theme and operational discussion item will be discussed in two phases: first, a short presentation will be made by a facilitator, and then the facilitator will assist the panel chair in conducting an in-depth discussion between panelists and relevant personnel. Discussions will take place in the presence of the audience with key SEFSC, SEDAR, or council individuals brought to a front table for the convenience of the panel. Assessment themes, operational discussion items, and suggested discussion questions are listed below:

Theme 1--Science and technical approaches: Does the Center apply a suitable scientific/technical approach to fishery stock assessment modeling? What is the suitability of the stock assessment models employed, taking into account the constraints imposed by the available data?

Suggested questions that might be discussed:

- a) How is the Center using an appropriate suite of analytical methods to meet the regional fishery stock assessment objectives?
- b) How does the suite of assessment models cover considerations from data-poor to data-rich?
- c) What are assessments capable of considering possible ecosystem effects?
- d) How does the Center work on enhancing and testing these analytical methods? How are they keeping with and contributing to the state-of-the-science nationally and internationally?

Theme 2--Overview of assessment process: What is the efficacy of the assessment process regarding clarity of terms of reference, transparency to stakeholders, throughput, documentation, and reproducibility of results? What is the efficacy of the assessment process from an SSC perspective?

Suggested questions that might be discussed:

- a) What are the explicit terms of reference for conducting and reporting assessments?
- b) How do reports provide a complete description of the work and a concise summary?
- c) How do assessments adequately and incrementally build upon past assessments and reviews?
- d) What are the clear protocols for delivering draft assessment products to peer reviews?
- e) How are of assessment scientists involved in preliminary data preparation and analysis sufficient to utilize their statistical expertise, but not burdensome?
- f) What are the protocols for consistently dealing with technical issues, as appropriate to the stock, for example: calibration of catchability, consideration of dome-shaped and time-varying selectivity, natural mortality, estimation of stock productivity, characterization of uncertainty, etc?
- g) What are the protocols in the assessment process for conducting sensitivity analyses and evaluation of risk?

Theme 3--Peer review process: What is the adequacy of the Center and SEDAR assessment peer review process, taking into consideration the participation of other entities such as the Council's Scientific and Statistical Committees?

Suggested questions that might be discussed:

- a) What are the peer-review roles of the Center, SEDAR, scientific and statistical committees, and other stock assessment organizations?
- b) What are the TORs for assessment reviews clear and well defined prior to the assessment? How are they focused on key issues needing review? How are they appropriately, but not excessively, broad in scope? How do they focus the review on key, answerable questions?
- c) How are major data collection programs and modeling methods reviewed separately from the final review of assessments?
- d) How are there clear protocols for considering and including input from scientists not on the agency assessment team?
- e) How does the regional peer review process achieve an appropriate balance between transparency, thoroughness, and throughput?

Theme 4--Communication: Does the assessment programs adequately communicate to the councils, state commissions, and headquarters their methods and results? Does the assessment program adequately communicate to NMFS headquarters its research and needs?

Suggested questions that might be discussed:

- a) How are the assessment data needs being communicated to survey scientists, advanced technology experts, and fisheries-dependent data sources; and have improved data resulted from these efforts?
- b) How are assessment process and results adequately communicated to fishery managers, affected public and the scientific community?
- c) How are assessment methods and results being communicated sufficiently to the scientific community and to the general public?

Theme 5—Research opportunities: Are there opportunities for improving stock assessments and the stock assessment process? What are there avenues for improving stock assessments and the stock assessment process?

Suggested questions that might be discussed:

- a) How is the Center conducting the research necessary to improve stock assessments and produce timely and assessment-relevant scientific research products?
- b) How do assessment scientists engage in research published in peer-reviewed journals?
- c) How are there areas of expertise that could be added in the future to strengthen the ability of the Center to meet its management and research objectives?
- d) How should the Center be taking greater advantage of opportunities for collaboration in conducting fishery stock assessments and related research, including shared approaches with other Centers, regional academic partners, other government agency partners, and stakeholders?

Theme 6—Ecosystem considerations and next-generation assessments: How important are ecosystem considerations and next-generation assessments for improving the science used in management of managed fishery species in the southeastern United States?

Suggested questions that might be discussed:

- a) What are the short and long term expectations of SEFSC clients (councils, marine fishery commissions, stakeholders) with respect to ecosystem management goals and objectives?
- b) How can the SEFSC evolve to ecosystem based approaches to fisheries management with very limited growth in base funding?
- c) What efficiencies can the Integrated Ecosystem Approach offer for assessment and management of single species?

Theme 7--Organization, priorities and accomplishment: How well is the SEFSC organized to maximize stock assessment throughput and quality based on best available data for a given stock?

Suggested questions that might be discussed:

- a) How many FMP and non-FMP stocks are being assessed?
- b) How does the Center/Region schedule stock assessments in a manner that meets national standards and regional needs?
- c) What protocols are used to prioritize need, frequency and appropriate level of stock assessments?
- d) How has the Center reasonably balanced Council, other domestic and international stock assessment needs as well as additional analytical and review demands?
- e) How well does the Center involve internal and external clients and stakeholders in priority setting and the assessment process?
- f) How are the Center's scheduling and scale (e.g., benchmark vs. updates) for individual fishery stock assessments balanced with Center resources, and regional, national and international needs?
- g) What steps are the primary bottleneck in the number and timeliness of stock assessments each year: surveys, input data processing and management, assembly of assessment reports,

ability to address questions from previous assessment, availability of assessment scientists, and review scheduling? Are any excessively limiting?

- h) How is the Center prioritizing the appropriate initiatives and research areas to address current and anticipated stock assessment needs, including connection of stock assessments to broader ecosystem investigations?
- i) How do current and planned fishery stock assessments meet regional, national, and international expectations in terms of quality, quantity and timeliness?
- j) How well does the Center attain a prioritized portfolio of baseline assessments for all managed stocks (including data-poor) and full assessments for important stocks?
- k) How well does the Center consider ecosystem and environmental factors affecting fish stocks and their assessments?

Briefing and Background materials

All background materials will be provided to the Panel electronically via a website no later than 2 weeks prior to the review. All presentations will be provided to the Panel, through the website, one week prior to the review.

Products

Each panelist will produce a succinct report detailing his or her observations of and recommendations for the seven themes provided within the TOR for the Program Review. Individual reports are required for NOAA to comply with the Federal Advisory Committee Act (1972). Final reports will be submitted to the Center Director at the close of the review.

The Panel Chair provide a brief overview report, based on his/her perspectives of the review and common themes and unique observations from the individual reports

At the end of the review, each review panel member will be asked to provide feedback on the review process to strengthen future reviews.

Review Team Resources

NOAA Fisheries will pay for the travel cost for all panelists and a set fee for the services of non-governmental panelists. The SEFSC will assist review panel members in making travel arrangements.

During the review the SEFSC will provide the review panel with wireless broadband services and space to convene closed working sessions. If requested in advance, the SEFSC will, within reason, provide other items (e.g. desktop computers, printers/copiers) to assist the review panel with report preparation.

The last day of the review is dedicated to writing time to enable panelists to complete their reports and to a debriefing for the SEFSC leadership.

Review Panel

The scientific review panel will include four to seven independent, PhD-level or equivalent scientists with reasonable familiarity with the topic. Panels should include:

- 1 scientist from NOAA Fisheries
- 1 scientist from another NOAA line or staff office.
- 3- 5 (the majority) scientists external to NOAA.
- 1 Science Center Director (SCD, optional)

NOAA Fisheries requires that no NOAA Fisheries employee is selected as the Panel Chair. NOAA Fisheries also encourages that a federal scientist external to NOAA be selected as the Chair. The NOAA Fisheries Program Review Coordination will attend and provide guidance to the panel on complying with FACA. To ensure a majority of independent reviewers, reviewers who are members of Science and Statistical Committees will be from a different region than the center being reviewed, and recently retired and former NOAA Fisheries employees may not be considered external. The NOAA Fisheries Assistant Administrator or their designee shall approve the panel selections.

Agency Response

The Center Director will send the Chair's summary report and the panel members' individual reports to the NMFS Chief Science Advisor as soon as the reports are received. The Center director will also prepare a brief response to Chair's summary report (this can include clarifying information and respond to controversial points within individual reports even if not mentioned in the summary) within six weeks of receipt of the Chair's review report package to the NMFS Chief Science Advisor.

The NMFS Chief Science Advisor will send the package on to the NMFS AA for clearance.

At end of 60 days of the close of the review, all documents (Chair's summary report, Director's response, individual reviewers' reports) will be posted on the Center and Office of Science and Technology websites. Authorship of the review reports will remain anonymous to the public.

Material Provided by the Center

The Centers will provide presentations and background materials to facilitate the independent review. All materials (e.g. power point presentation, word files, pdfs) will be named such that the file names indicate the main topic the material covers. Materials will be provided in an interactive agenda format (i.e. materials will be linked to the talks listed on the agenda) and will be marked as required primary references (must read) and secondary references (optional for further detailed information). The following list represents the type of materials, or equivalent, that might be made available to the panel.

1. Identification and brief description of the clients for Center assessment products;
2. Description of the Center assessment process, including involvement of external and internal partners;
3. Table of assessments completed in the past 5 years that includes level of assessment (e.g. benchmark, tier);
4. Description of the structure and magnitude of the assessment program; including the number of assessment scientists capable of being lead during the conduct, review and delivery of assessments to clients;
5. Brief description of analytical models being used; more complete if a customized model;
6. Terms of reference for assessment documents;
7. Examples from a few assessments to illustrate how assessments implement these terms of reference;
8. Examples of stocks with shared assessment responsibility (e.g. groundfish, salmon)
9. Description of the process by which the Center/Council prioritize stocks for full (benchmark) assessment and for update assessment;
10. Description of peer review system implemented by the Center/Council;
11. Terms of reference for assessment peer review;
12. Example peer review of assessment (e.g. CIE review);

13. Timeline for a typical assessment(s);
14. Description of the methods (e.g. website) by which assessments are made available to the general public;
15. Description of bottlenecks to improved assessment throughput;
16. Description and examples of research to improve assessments;
17. Description and examples of connection between assessment and ecosystem programs;
18. Description of the workload and research opportunities of a typical assessment scientist(s);
19. TORS, reviewers comments and Center responses to FY13 program reviews